Pro Seal hell - 25/08/2011 - 2h

Category: 1.3. Rudder
Published: Thursday, 25 August 2011 18:24
Hits: 1868

Preparation of the final steps for the rudder.

To start, I had to rivet the top rib that closes the top of the rudder skeleton inside the counterweight skin and the rudder skin. For now, I only set the counterweight skin rivets both sides. I checked the torque on the counterweight bolts to 25 lbs/inch before closing it.

There is no way to access the counterweight afterwards. The only way is to drill all the rivets out again. So don't forget to torque the nuts on the counterweight.

Then prepared the aex wedge, trailing edge part of the rudder skin and end of the stiffeners. I scuffed them up gently and applied silicon entferner in preparation of the proseal application.

The manual states that glueing the aex wedge in place before rivetting decreases the risk of a bowed trailing edge. As the trailing edge may only have a maximum variation of 0.100", I found it wise to do this glueing first.
Two options, using an epoxy glue or using proseal. I opted for the proseal for two reasons. First, it is good for getting some experience with this type of material in preparation of later work on the tanks. The proseal is also called fuel tank sealant. It's very very very messy and sticky. That's also the second reason I opted for proseal. I read some articles of people who got poor results with epoxy, where

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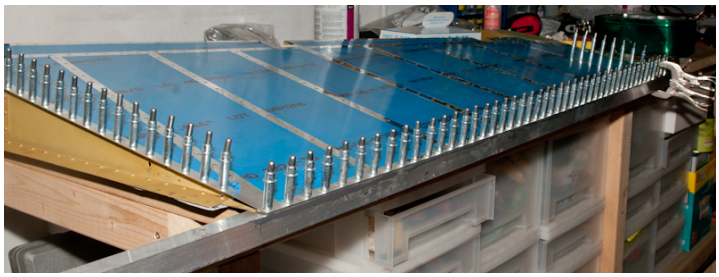
the skin loosened again during rivetting. Be well prepared if you use ProSeal. It's a real mess and it cures rapidely. Just half an hour with this mess makes you understand why so many people talk about it on their websites. Make sure you have plenty of plastic gloves and popsickle sticks at hand. Clean all your tools with aceton immediatly after. Once it cures, this proseal becomes like a hard rubber that is even hard to remove with a stanley knife.

First of all, I added some RTV at the ends of the stiffeners and on the last rivets.

I applied the proseal on the aex wedge and installed it between the skins. Then quickly added the predrilled aluminum angle that hold the trailing edge straight. The cleco's go through the trailing edge and through the aluminum angle.

Then pushed gently with three fingers between cleco's to remove excessive proseal to avoid bulges sticking out. Finally started cleaning the outside of the rudder on the once side with aceton to clean of the proseal from the skin.



Now this has to cure for a couple of days. I will let it cure 3 days.

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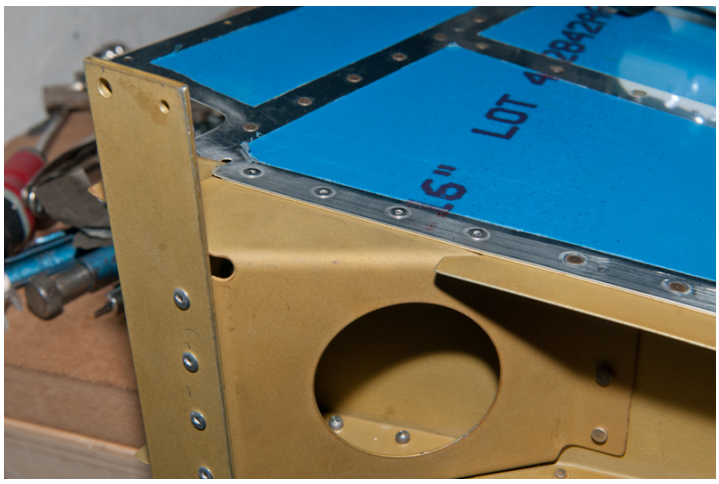
The next day, as the proseal was already hardened, I set the rivets on the bottom side of the rudder and installed the left side attachment plate for the fiberglass bottom

The last rivet on the far trailing end is not set yet. I don't have the right bucking bar to do this and am still trying to find a good solution. The indirect rivetting technique is probably best for this but so far I had not much succes. I will do some practicing over the weekend on scrap pieces to master this technique.

Finally pullet the 4 x CS4-4 rivets in the rudder horn. First enlarged the holes to #30, deburred and removed the chips in between. Then used the hole deburring tool to manually countersink the dimples a little to get better result on the flushness of the rivets.

They are finally not completely flush but I did not want to remove more of the rudder skin material. This skin is very thin and I prefer the extra strength with minimal rivet drag.



And now, it's waiting until the proseal is fully cured to backrivet the trailing edge.

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